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A FOURTH-GRADE GEOGRAPHY UNIT

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Real geography differs greatly from that mass of descriptive facts which comprises much so-called geography. Real geography emphasizes primarily the relationships existing between natural environment and the distribution, activities, and characteristics of men. Even in the primary grades, geographic materials can be so selected and presented as to lead children to sense and formulate in their own words a few important geographic relationships or principles. The very fact that, from their experience with well-chosen concrete material, children see for themselves a relationship involved proves that the relationship sensed is within their comprehension. The study in the primary grades of certain habitat groups of people in type environments has been made in many schools, for example, in such a way as to give children the fundamental idea that the kind of country in which men live influences the things these men do.

The project or unit of work described in this article was planned with the purpose of giving to a group of children in the fourth grade of the University of Chicago Elementary School a conception of the world as a whole in such a way as (1) to provide them with an adequate viewpoint, basis, and framework for their later geography work; (2) to develop in them skill in interpreting and using simple geographic materials; and (3) to develop in them the ability not only to sense but also to apply a few important geographic principles.

The general lines of procedure followed were those of (1) studying specific habitat groups in specific regions instead of studying generalized groups; (2) studying these groups in such sequence as to facilitate the sensing of the fact that the distance of a region from the equator influences the climatic characteristics of the region; (3) supplying in connection with each region studied vivid imagery of natural environment and human activities within the region;

(4) providing for imaginary journeys as transitions from region to region; (5) working out simple map symbolism in connection with each region studied; and (6) building world maps by putting together the maps for each region studied. The class spent 140 half-hour periods on the project.

The children were asked if they would like to visit in their imagination many parts of the world to see how people in other places lived. They would like to very much. Would they rather visit some place near home or one far away? Far away (without an exception). Would they not like to build a world picture or model of some sort as they went in imagination from place to place to keep as a record of their experiences? They were delighted with this idea. During the discussion as to what form such a record could take, it was decided that, of the possibilities suggested, large clay balls would be the most nearly like the earth, but they would be so large as to be unwieldy if they were sufficiently large to accommodate the desired records. Finally, the children decided to do what seemed the next best thing—to “take a picture” of the earth as it would look if they were far away from it in space. They chose to make this picture the size of a blackboard globe that was in their room so that records they could make on the globe and on their globe pictures would be alike. This decision reached, each child drew a fourteen-inch circle on a half-sheet of tag-board and shaded it to make it appear spherical. The goal in their minds was the filling in on this sphere of some records that would remind them of their visits to various parts of the world. When it was suggested that before they started on their journeys they ask any questions that had been prompted by their work thus far, they raised the query as to why, on a round earth, some people are not standing feet up and head down. It was explained to them very simply that “down” is always toward the center of the earth and “up” away from the center, because of a force that tends to pull all bodies toward the center of the earth much as a magnet attracts a needle.

The “lands of the Tigris and Euphrates” was chosen by the teacher as the first place to visit. It constitutes a good type region in which the influence of physical surroundings on the lives of the

people may be seen clearly. Moreover, in their history class the children were ready to read at that time the story of ancient Babylon. Pictures which, with a single exception, were without captions, were hung on the wall where the children could study them.

The pictures showed the following things: a passenger steamboat on the lower Tigris; men poling a little boat through a reed-bordered stream, a village of reed houses, villages of flat-roofed clay houses, men at work in irrigated fields along the river, irrigated fields and irrigating ditches, barren stretches of land adjoining the river banks, women carrying their water in jars from the river, men building koofahs and keleks—native boats, the wharfs of Bagdad, a street in Bagdad, showing throngs of people, a bazaar in Bagdad, and mounds that mark the ruins of ancient cities.

The children were told that if they went up the river in the boat shown in the first picture they could see along the river bank the scenes shown in the other pictures. They could make a list of the things they saw which interested them most and which seemed different from the things to which they were accustomed at home. They could then ask in class any questions and tell anything they wanted to tell about the things they saw in the pictures. It should be noted that this was somewhat like taking a field trip to the region itself. For children, it had an advantage over actual field work in that their attention was attracted only to material relevant to the purpose of the survey. The following illustrates the lists made by the children: houses of grass, tall grasses, houses with flat roofs, dry land, farms, lifting water, camels, palm trees, funny shops in a city, narrow streets, hills, funny boats, and dark people with loose dresses.

The following questions and statements are typical: (1) What are the boats made of? Why do they make such funny ones? (2) Are there any other animals there besides camels? (3) Why don't they have more windows in their homes? (4) Why do the people wear such funny clothes? (5) I can't find any trees but palm trees. There aren't very many trees.

It is to be noted that the "why" questions were prompted by the noticing of the differences between the dresses, houses, boats, etc., along the Tigris and the dresses, houses, and boats to which

the children were accustomed. Houses they knew and clothes they knew, but not houses and clothes such as these. It is the thing which is *not wholly but in a measure* foreign to their experiences that prompts the exploratory, investigative attitude. The realization of this fact is an invaluable help to the teacher in arranging and presenting geographic material in such a way as to cause the child to ask natural questions which will lead him to the discovery of underlying geographic principles.

To see the way in which such questions can lead to the discovery of the principle involved, consider the discussion of the questions, "What are the boats made of? Why do they make such funny ones?"

Teacher.—In picture 6 you can see men making a boat called a koofah. What do they seem to be using?

Child.—Small limbs and twigs of trees.

Teacher.—Where along the banks did you see limbs from which such twigs could be taken?

Child.—Nowhere. There are no trees but date-palms.

Teacher.—Why can't these come from the palm trees?

Child.—You can see in the picture that palm trees have no limbs and twigs like that.

Teacher.—There is a paragraph in this book that tells us something that may help us. John may read it. [John reads a paragraph which tells that farther up the river willow trees are found growing along the banks.] How does this help you?

Child.—These may be willow twigs. Willows have branches and twigs like these.

Teacher.—Yes, these are willow branches. How do you suppose these willows are brought down here?

Child.—On the river.

Teacher.—Why do not these boats leak? They look just like willow baskets.

Child.—I know. You can see in the Bagdad wharf picture. There is a thick coat of something on the outside of the boat.

Teacher.—This paragraph will tell you what this material is and where it comes from. [This paragraph described the asphalt lakes of the upper basin from which the natives secure the material with which to "pitch" their boats "within and without" even as Noah is reputed to have treated the ark of Biblical fame.]

Teacher.—Can you now tell why they build such funny boats?

Child.—They use what they can get near the river.

A similar informal discussion of the kelek, the other type of native boat, served to bring out the facts that the inflated skins of animals are used to float these willow rafts and that these skins are to be had because many sheep and goats are reared on the nearby unirrigated grass lands which are too dry for farms. So the children came to realize through work that was largely on the play level that the kinds of boats these people make depend on the usable materials at hand. They sensed somewhat at this juncture and later in the unit clearly understood the principle that the nature of these materials depends on "the kind of land in which the people live," as the children phrase it—on the "physical environment of the region," in adult language.

Similarly were worked out the relationships of the flat roofs of the houses to the scant rainfall; of the thick mud walls to the kind of building material at hand; of the few windows to the lack of shade; of the loose robes and the turbans to the heat, the lack of shade, and the blowing of the desert sands; of the presence of the date-palm as the dominant tree to the scant rainfall.

In their imagination the children followed to their homes the people whom they saw in the streets of Bagdad. They also found from another set of pictures, which they used in much the same way as they had the first pictures, the work the people did, what they ate, and how they lived. By numerous such concrete experiences, they came to formulate the simple principle that "the people eat what they do, wear what they do, work in the ways they do, and live as they do because of the kind of land in which they live."

It is important in teaching real geography that the imagery and group of ideas associated with a given type region be securely fixed in order that, by later comparison with other types, other principles may be sensed. The technique of the fixative process is based on the pedagogic principle that a variety of contacts with the same material tends to overcome the "infinite capacity of the human mind to resist impression." It is important that children be allowed to live leisurely, as it were, with their ideas. Game devices serve well in this capacity. To illustrate, the game "Suggest" was played as follows in connection with the Tigris and Euphrates unit. The words "Tigris River" were written on the board by

the teacher and the chalk passed to a member of the class who wrote underneath these words the name of one thing that was suggested to him by "Tigris River"—"date-palm," for example. He then passed the chalk to another child who added a second name to the list and passed the chalk on to another. So the list grew until each child had been given a turn or until the supply of ideas had been exhausted. The game element was furnished by trying to complete the list in a given time.

As the children visited in their imagination a Tigris village and examined the houses, the question was asked by the teacher, "On which side of the house would you expect to find shade from the rays of the noonday sun?" In order to answer it, the children had to know about the position of the sun in the sky at noon, and they were told that its daily path is much the same as here (Chicago) except that on any given day it passes somewhat nearer the zenith there than it does here. In connection with the story of a Christmas day spent in Bagdad, the points were made that the winter days there, as here, are shorter than the summer days and that the winter is not as cold as in Chicago. In this way, the concrete basis was laid for a later understanding of why latitude influences temperature, but, as given, it formed merely a part of the environment pictured.

The problem which confronted the children at this juncture was what to put on their globe picture that would stand for and serve to recall to them the many things they associated with the Tigris and Euphrates. An airplane photograph of the Tigris near Bagdad afforded a bird's-eye view of a portion of the region. The smaller features of the landscape were not distinguishable. They saw that a city viewed from high in the air is just a spot; irrigation canals are mere lines; a river is a winding strip of white, broader than the canals. The details sink into insignificance.

The picture was hung first so that the river crossed it from top to bottom, and the children were told that this was the view as it would appear if the person in the airplane were facing north as he looked down upon it. Could they place the picture as it would appear to one looking east? This they easily did by putting the picture on the floor with the north end to the north, and looking down

upon it they faced east. Looking at it while facing the east, the river was seen to cross the picture from left to right. The picture was then hung on the wall in this position. By these and similar experiments, it was seen that, in drawing the plans of the region which this airplane picture suggested to them, they would need some device to show direction. They suggested several, including the one ordinarily used. They were told that adults had encountered the same problem and had solved it by deciding to place all such plans as they would appear to one facing north, i.e., as the picture had first hung on the wall, with the north part of the region at the top of the picture. They drew on the blackboard a rectangle that represented the part of the region seen in this view and drew a broad white "line" to represent the river. They added a white spot for the city of Bagdad.

The children saw that if they had actual airplane views all along the river, they could get a plan or diagram of the whole river by placing them together. They saw from an airplane picture how a seacoast appeared from high in the air and decided that on their diagram a line would represent this coast line. They were told that since these actual airplane views, by means of which they could expand their diagrams, were not to be had, the teacher would have to supply the rest of the plan from plans which men had made by other means. They were then shown a map which the teacher had drawn on the blackboard and had kept covered. Could they find Bagdad? Yes. Where in this plan did the plan they had drawn on the board fit? (The discussion which followed gave some idea of scale.) Which was the Tigris? Which the Euphrates? How did they know? Could they think of any way in which they could distinguish more clearly the lines that stood for coast lines from the lines which stood for rivers? They suggested coloring blue the part of the Persian Gulf that showed in this diagram and did color it on the board map.

The teacher then told the pupils that she could make her diagram tell them something that in their travels thus far they had not found out. They were to watch carefully to see if the lines and colors she added told them something new. (The lines added were symbols for the coasts of parts of the Caspian, Black, Mediterra-

nean, and Red seas.) Without an exception they saw that they would come to the coast of a sea if they went west, southwest, northwest, or northeast from Bagdad. They were in reality beginning to *read* maps. They studied a set of pictures of scenes they would see between Bagdad and the sea to the west, the Mediterranean. The last picture of the set was a beautiful view of the bay at Alexandretta. So additional imagery was associated with the diagram. They then studied views of the regions they would see between the Black Sea, to the northwest, and the Caspian Sea, to the northeast. They were delighted with the Caucasus mountain scenery. What could they put on the plan to stand for these mountains? An airplane view of rough land near the Persian Gulf helped them. They saw how the shadows made one side of the ridge look dark, while the other side was light. After each member of the class had worked out the best representation he could on the board, the pupils compared results and the child who had made the one the class considered best added the Caucasus Mountains to the board plan.

The next step was to make this plan the right size for their world travel records and to determine the placing of the small plan on the large one. Of course, the place it belonged on their globe plan would depend on the particular half of the globe their circle represented. This the teacher determined and drew on the children's globe-plans squares that indicated both the size and the position of the square in which the small plan belonged. When the children saw how small a space this was, their reaction unprompted by questioning was, "The world must be very large indeed." They compared the advisability of drawing their small plan free-hand and of having hektographed copies made of an accurately drawn plan in which the rivers and seacoasts would be "just right." To the latter, they might add symbols representing the city, the mountains, the sea, and any other features they might wish to show. They decided in favor of the second scheme, so what was really an outline map of the Tigris-Euphrates region was given each pupil. He pasted it on his map in the place indicated by the teacher and added the coloring and symbols desired. The first unit of his world record was complete. The few symbols on that

little plan recalled to him the whole group of ideas and all of the vivid imagery of the visit in this region. The fact that only parts of the various seas showed made the children eager to explore farther with a view to finding what lay next. Through choosing symbols for themselves, *after they had clearly in mind the things to be represented by the symbols*, the children began to come into a *real* understanding of map language.

The one sea on their map the name of which the children did not know when they put their little map on their large one was the Red Sea to the southwest. The next trip planned, accordingly, was one from Bagdad across Arabia to the southwest coast. The children had studied the life of the Arabs in the second grade, and they were very happy to find that the country of Arabia lay near the Tigris. The journey acquainted them with the plateau nature of Arabia, and, after clearly imaging plateau characteristics, the children were given the term "plateau." They added the Arabia "block" to their maps, worked out a symbol for a plateau, and added it. They were eager to know what they would find across the Red Sea.

In order to let them use the ideas they had gained thus far regarding the effects of environment on human activities, pictures of Egypt were hung where they could be examined by the children and the question was asked, "Do you think this region is like or unlike the Tigris-Euphrates region? Why?" As they studied these pictures, they found, for themselves, that an environment similar in most respects to that of the Tigris-Euphrates country had resulted in the building of houses similar to those of Babylonia, in the wearing of similar clothes, in the growing of similar plants, in the eating of similar foods, and in the doing of similar work. Thus their idea that aridity in the Tigris-Euphrates region had brought to pass certain definite human adjustments was expanded into the broader idea that aridity in two different regions had resulted in very similar human adjustments. They were working toward the making of generalizations through comparisons as the accumulation of selected concrete data increased. It is noteworthy, too, that by the use of this comparative method Egypt was fully mastered for fourth-grade purposes in a small part of the time spent on

Babylonia and Mesopotamia. To the section on their maps which represented Egypt, they added symbols that they chose for the Assuan dam and the strip of irrigated land along the river below the dam. As they added Cairo, proof that their maps were full of meaning came in their question, "Can't we put a sign for the pyramids, too?" "What do you know about the pyramids?" "We know all about them from our history class." (This with the blissful omniscience of youth). "Where are they?" "West of Cairo." So they added a little triangle that meant pyramids to them.

Another illustration of the desire to make contributions from other fields to the growing "sign record" of the world was the announcement by one of the pupils that he wanted very much to put a light dot on his map to show where Babylon had been. Apparently lightness to him indicated the past tense of the city's existence, and the historical fact that Babylon had existed he wanted definitely to record in this interesting sign language.

The scientific building of a geography vocabulary was an important phase of the plan. It has been touched upon in connection with the Arabian plateau, and the following incident indicates further the method employed. This method differs radically from the practice, current in teaching "fact geography," of merely memorizing the definitions of terms. In "exploring" one of the low hills sighted from the Tigris, the children found that it was a mound of ruins resulting from the crumbling of an ancient city. Among the remnants of houses within the mound were clay tablets upon which were written or drawn records of the people of the former city. After talking about why these people wrote their records on tablets of clay instead of paper, the class read that the translation of one such record showed that a town which is now seventy miles from the Persian Gulf was, when that record was written, on the shore of the gulf. "The town has not been moved. What could have happened?" Their desire to find out motivated a simple discussion of the work of the Tigris and Euphrates in carrying the sediment which has filled in the head of the ancient gulf. The lowness of the new land was seen to account for its swampiness, for the growth of the sedges, and for the use of sedges in building the houses which

the children had seen along the lower river. Examination was made of the work of miniature temporary streams which could be seen near the school during and after rains. The children discovered from observation the fan shape of the deposit made at the mouth. After the concrete imagery involved in the term "delta" had been built up in these two ways, the term was given them. No attempt was made to generalize it at this time, but events proved that the children did this naturally, for when they later saw the pictures and map of lower Egypt a member of the class volunteered, "The Nile has built a delta, too, hasn't it?" and gave intelligent reasons for his conjecture. Similarly, after the children examined in another connection the pictures of Gibraltar which gave them their imagery of "strait," the term "strait" was given them. In a few days, one child suddenly exclaimed in class, quite irrelevantly, "I've found a funny thing, a strait of land." It was the Isthmus of Corinth that he had discovered. A real understanding of geographic terms is insured when vivid imagery precedes naming and defining.

Travel to the west took the children to "Machla's home," the Sahara. The set of National Geographic Pictorial Geography pictures on Sahara life was used. The children discussed whether or not the region was similar to the regions they had seen and then checked the accuracy of their ideas by reading the stories printed at the sides of the pictures. The Sahara block was then added to symbolize "Machla's home."

Going to the south of the Sahara, the children came to "Bingwa's home" in the vicinity of the equator. Pictures of this region showed conditions that were very different from any they had seen at home or in their travels. There were many trees of strange kinds and a dense undergrowth. The houses were made of leaves and boughs; the people wore few clothes, and there were large animals. Discussion of the pictures brought out questions such as why Bingwa wore fewer clothes than Machla, and it was seen that the shade of the trees in Bingwa's country furnished him the protection from the sun's rays that Machla had to secure from clothing. In discussing the difficulty of seeing the sun through the dense foliage of the tropical forest, it was necessary to know where in the sky

to look for the sun, and so it was learned that in its daily path the sun there reaches each noon a point relatively near the zenith. The children became familiar with tropical forest scenery and with the term "tropical." The banana tree was so emphasized, in connection with the use that Bingwa's people made of it, that they learned to recognize it easily and it became for them a sign-post of a hot, rainy land, as was the date-palm of a hot, dry land. The middle Africa block was added to their maps.

Embarking from Bingwa's country, the children next journeyed north along the western coast for the purpose of reaching the Mediterranean Sea, which they had seen along the northern borders of the desert, and of exploring the north shore of that sea. In entering the Mediterranean, they passed through the Strait of Gibraltar, visualized it with the help of pictures, and then added "strait" to their vocabulary. As they proceeded along the Mediterranean shores of Spain and France and stopped from place to place, those things in the pictures were emphasized which were to serve as sign-posts for the Mediterranean type of region—olives, citrus fruits, vineyards, and wheat (raised here in many places without irrigation). The story of Miss Semple's interpretation of Aesop's fable of "The Fox and the Grapes" served in a dramatic way to associate with the term Mediterranean and with the Mediterranean sign-posts the idea of summer droughts and winter rainfall. The children saw other concrete ways in which this condition influenced the lives of the people. As they ate their lunch with Toni on an Italian hillside, they noticed the position of the sun and were told that it was a little farther from the zenith than it was on that day in Machla's country. They became familiar in an elementary way with volcanoes as they explored Vesuvius, and with islands, peninsulas, and isthmuses as the Mediterranean journey proceeded. On the north Mediterranean block which they added, they put the symbols for Marseilles, Genoa, Naples and Vesuvius, Venice, Constantinople, Athens, and the mountains they could see along the Riviera coast and in Italy.

No names had been written on the world record maps the children were making. They showed their maps proudly to other classes and to visitors, pointed out accurately specific cities, seas, countries,

and rivers, and talked fluently about them because the symbols on the map *in themselves* recalled their travel experiences. At this juncture a good color contour wall map of Europe, partly unrolled so that the Mediterranean, north Africa, Arabia, Mesopotamia, and southern Europe showed, was placed in a prominent position in the room so that the children's attention would be attracted to it. There were no names on the map, so that there was nothing to indicate what the map showed. This was the first time any map other than those mentioned had been used in the geography class. Several remarked as soon as they saw it, "I know what that is." "What?" "The Mediterranean Sea." "How do you know?" "Look at Italy." "Look at the Strait of Gibraltar." "I see Greece." "I see the delta of the Nile." "I see the Tigris and Euphrates." "Here is the Bosphorus," etc. Then someone asked, "What are the colors for? We haven't any colors on ours." "What do you think they mean? Notice where they are and see if that helps you." "I think the green means lowlands." "Why?" "Because it is green around Venice where we saw that it was low." "I think the dark brown means mountains." "Why?" "It is dark brown where we put mountains in the middle of Italy and along the Riviera." "Yes, and see the Caucasus." Similarly they decided that a smooth light brown must indicate a plateau because of the coloring they found in Arabia. There was considerable excitement during this lesson that the bald questions and answers here given do not reveal. It was caused by the interest that comes from solving a new puzzle and the satisfaction that results when a solution is reached. "Now that you know what the colors mean, what can you learn from this map that you didn't know before?" was the question that started a new game. As the children had just skirted the coast of Spain, the fact that interior Spain is a plateau was new to them, and so on.

The children asked so repeatedly if they might not roll the map down farther to see what they were going to find as they went on to the north that at last the permission was granted. The chance to read a map thus seemed a great privilege. Switzerland, Holland, Norway, and Lapland, the other lands to be visited, were pointed out, and the children were asked to tell from the map

what kind of country they would expect to find in each. Since they had discovered its existence from the wall map, the whole north Europe block was added at once, and, as each of the type regions mentioned was visited, the principal life responses to environment were made clear, and symbols were added that could serve to recall the imagery they associated with these places. They realized that there were many large regions, such as France, which they saw only in their transition journeys and named only in passing. By reason of their disappointment in regard to this phase of their travel, they were promised that they might return to sojourn in these countries at a later time. Thus the work of the later grades was motivated.

By the time the children had completed these units, they had seen concretely human responses to tropical environment, to desert environment, to Mediterranean environment, to mountainous environment in an inland region, to a lowland environment in a coastal region, and to a highland environment in a coastal region. Moreover, they had seen that in each place in which they had sojourned since they left "Machla's country" the sun appeared to follow a somewhat different path across the sky, and that the farther north of "Bingwa's country" they were, the nearer to the southern horizon the sun seemed to be at noon on any given day, the longer were the days in summer, the shorter were the days in winter, and the colder and longer were the winters. They had also seen that, as they traveled east and west, from Mesopotamia through Egypt and "Machla's country" and later along the Mediterranean, these factors remained constants rather than variables. Thus they were being led toward a realization of the principle that the distance of a man's home from the equator influences his activities through influencing his environment.

The children were in a new quandary when, after they had reached the shores of the Arctic, they were asked, "How far north can a man go?" Through puzzling over it and trying to find a solution for it by examining the blackboard globe, they were made eager to hear of the north pole, the south pole, the axis of the earth, and the earth's rotation. The imagery that should be associated with the term "north pole" was supplied by a detailed story of

just what was found there and done there by Peary and his party.

As an exercise that would serve to test whether or not the children had the idea of the types of change that occur as one passes from lower to higher latitudes even though they had not expressed it in words, they were asked what they would expect to find as they came southward in eastern Europe from the Arctic to the Mediterranean. They noticed that the map showed that there were no mountains there, such as the Alps. All but two of thirty children so tested described accurately in the reverse order the changes that they had experienced in going north, namely: (1) The sun seemed higher in the southern sky each day at noon than at noon the preceding day. (2) In northern Russia they expected to find tundras as in Lapland. (3) Farther south they expected to find trees and farms and grasslands. (4) Days would be longer in summer and shorter in winter in Petrograd than in Odessa.

A description from *The Secret City* of a winter day in Petrograd and pictures of Petrograd showing street car tracks laid across the frozen Neva in winter and street cars on the river ice were received with rejoicing as corroborative in their opinions, as were also views of Odessa and the southern wheat fields.

The children were then told that Europe, which consisted of all the land part of the map north of the Mediterranean Sea, was called a continent. Playing the "Suggest" game, they tried to see what was suggested to them by the "continent of Europe." The eighty things which they put in the list in a very few minutes showed that the phrase had much meaning for them. The mere quantity of things associated gave a "size import" to the meaning. They were then told that there are five other great continents. They crossed out from the list labeled "continent of Europe" those things which belong particularly to Europe, e.g., Vesuvius and Venice, and left those that they thought might be found in any continent. Thus "continent" became a part of their geographic vocabulary. They learned that Arabia was in the continent of Asia and the homes of Machla and Bingwa in the continent of Africa. They were eager to add the remainder of Asia, the remainder of Africa, and the other continents to their world maps.

First, however, the children needed to see vividly in a general way conditions south of Bingwa's country. This was accomplished by the story of the voyage of Amundsen and his dog, Colonel, to find the south pole. The more significant facts of the story are that as the boat Fram took Amundsen and his party from Norway south, it came into warmer and warmer regions. The men could put on thin clothes as they approached Bingwa's country, but the poor dogs, with their coats of heavy fur which could not be changed, lay on the decks and panted. After they passed Bingwa's country, however, they gradually became more comfortable. Finally, it became so much cooler that the men put on heavy clothing again, and at last they reached a land of snow and ice in which Colonel could be happy. Just as the children had read of what Peary found at the north pole, they now learned what Amundsen found at the south pole. Watching the sun each day from the boat, they found that even in Bingwa's country they looked south to see the sun at noon. Farther south they passed the place where the sun seemed directly overhead at noon. On the following day the sun was at noon a little below their zenith to the north and from that time on the sun appeared lower and lower above the *northern* horizon each day at noon. They made the journey in November and December, at the time when they had seen the sun lower than at any other time in the northern countries. Here it was as high in the northern sky as it was in the southern sky in summer in lands far north. The story of the life in Amundsen's camp revealed the fact that the long day in Antarctica came during the time of the long night in Norway. No effort was made to explain astronomical relations at all, but a basis for understanding later just why latitude influences temperature was laid by simply contrasting the imagery they had of the daily paths of the sun in the different parts of the world they had visited.

The children saw that Bingwa's country was about half-way between the north pole and the south pole. They learned that we speak of the exact half-way line as the equator. The children now had a basis for expecting how the home of a little girl in South Africa would differ from Bingwa's home. From a primary *Geography of the Transvaal* they were read paragraphs by which they could check

their ideas. They then added the South Africa block to their world picture map.

From a globe they found what the other continents are and how one would reach them from Europe and Africa. They saw that they could add Asia and Australia to their picture but that they would have to make another picture in order to show North and South America. They decided that, since they had to walk to the other side of the globe to see the half that was not in their picture, they would put the picture of the other half on the back of the circle of tag-board on which they had pasted the first half.

Before he might add the outline of any other continent to his globe picture map, each child had to do three things: (1) Find the continent on the globe and notice its location with reference to the equator. (2) From an envelope of pictures marked with the name of that continent, choose one picture that he thought was taken in the northern part of the continent and one which was taken in the southern part of the continent. If the continent was a long one from north to south, he might also choose one he thought came from the middle part. He must arrange the pictures so that the northern one was at the top of a sheet of cardboard provided for the purpose, the southern one at the bottom, and the middle one in the middle. (3) Pick from the hektographed outline maps on the teacher's desk the one which would stand for that continent on his globe map.

When the pupil had done all of these correctly, he might color the section he had thus earned and add it to his world map. This exercise necessitated the application, by each individual, of the principle around which the unit had been organized. If a child did not choose a tropical scene from the Asia envelope for *southern* Asia, and a tropical scene from the South America envelope for *northern* South America, he had failed in one or more of these ways: (1) He could not recognize tropical scenery. (2) He had not found accurately from the globe the location of these continents with reference to the equator. (3) He did not yet sense the principle clearly enough to apply it.

As it worked out, there seemed to be very little confusion in the minds of the children as to how the pictures should be arranged.

By the time a child had passed this test for each continent and had added to his world map the sections he had "earned" by so doing, he had not only strengthened his ability to use the principle in question, but had learned the distribution of the major land and water areas of the globe. The children were delighted when they found how their own country fits into the whole plan. Furthermore, they had gained this first world view without touching upon any continent in such a way as to make the later study of that continent repetition in any sense of the word. Their plan was to them just an interesting sort of framework which prompted them to want to know many things about many places. About their home region they now had many questions they wanted to ask that could not possibly have come naturally from them before they had sensed the principles to the realization of which this world unit had led them. "Why do we build so many kinds of houses?" "Why do we wear the kinds of clothes we do?" expressed their inability to explain their common experiences in the light of their recent generalizations.

This illustrates a point which much geography teaching fails to take into account. As was stated in the very beginning of the discussion of the world unit, the surprise element, the variation from the norm, leads children to raise their own questions. It must be kept in mind, however, that the norm or the generalization which the adult has in mind in connection with a given set of conditions may not have been sensed by the children. Until he senses a norm, a deviation from that norm is not to him abnormal and affords, therefore, no surprise and raises no questions. To come back to the specific case in question, until, by seeing that in Mesopotamia, in Egypt, in Central Africa, in Switzerland, and in Norway physical environment influences the kinds of houses the natives build, the child simply takes his own house for granted and has no questions to ask. After he has generalized, consciously or unconsciously, he attempts to "true up" his own experiences with his generalizations. If they do not quite "true," he has new questions to ask, new problems to solve.

The children, at the close of their study of the world unit, raised new problems that motivated a study of their own continent. Accordingly, the study of Anglo-America, introduced through these problems, followed.